

217/785-1705

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- RENEWAL

PERMITTEE

R. R. Donnelley & Sons Company
Attn: Bruce Mustread
1600 North Main Street
Pontiac, Illinois 61764

Application No.: 01040009

I.D. No.: 105060AAP

Applicant's Designation:

Date Received: June 18, 2012

Subject: Printing Plant

Date Issued:

Expiration Date: February 20, 2013

Location: 1600 North Main Street, Pontiac, Livingston County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of eight (8) heatset web offset lithographic printing presses (422, 524, 624, 822, 823, 824, and 923) controlled by Tann thermal oxidizer RTO2, MMT recuperative thermal oxidizer, and L & E Regenerative thermal oxidizer, heatset web offset lithographic printing press 825 with integrated dryer/oxidizer, bindery paper rougher collection system, bindery trimmer/scrap paper shredder collection system, baghouses #1 and #2 (control collection systems), natural gas fired boiler (< 2.5 mmBtu/hour), natural gas fired heating units (< 2.5 mmBtu/hour), cleaning solvent storage tank, diesel fuel tank, 2 inkjet printing systems and hot melt glue bindery application systems pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Volatile Organic Material (VOM), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year of any combination of such HAPs). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permit(s) for this location.
- 2a. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

- b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

- b. Pursuant to 35 Ill. Adm. Code 212.321(a), except as further provided in 35 Ill. Adm. Code Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

- 3. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to excess 2000 ppm.

- 4a. Pursuant to 35 Ill. Adm. Code 215.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe, submerged fill, or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201 or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 215.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 215.121(b)(2).

- b. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 215 Subpart K (Use of Organic Material) shall apply only to photochemically reactive material.

- 5a. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Printing and Publishing Industry, 40 CFR 63 Subpart KK not because flexographic and rotogravure printing presses are not used at this source.

- b. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Paper and Other Web Coating, 40 CFR 63 Subpart JJJJ. Pursuant to 40 CFR 63.3300(c), web coating lines in lithography, screenprinting,

letterpress, and narrow-web flexographic printing processes are not part of the affected source of 40 CFR 63 Subpart JJJJ.

- 6a. Pursuant to 35 Ill. Adm. Code 215.204(c), the limitations of 35 Ill. Adm. Code 215.204(c) shall not apply to equipment used for both printing and paper coating.
 - b. This permit is issued based on the heatset lithographic printing presses not being subject to 35 Ill. Adm. Code 215.408 (Heatset Web Offset Lithographic Printing) because the emissions of organic material from this source are limited below 100 tons/year. Pursuant to 35 Ill. Adm. Code 215.408(b), no owner or operator of a heatset web offset lithographic printing facility, located in a county other than Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair or Will County, emitting over 100 tons/year of organic material, in the absence of pollution control equipment, may cause or allow the operation of a heatset web offset press unless the fountain solution contains no more than eight (8) percent, by weight, of volatile organic material.
- 7a. Pursuant to 35 Ill. Adm. Code 215.106, the operation of any oil fired or natural gas fired after-burner and capture system used to comply with 35 Ill. Adm. Code Part 215 of any section thereof is not required during the period of November 1 of any year to April 1 of the following year provided that:
 - i. The operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances or other regulated pollutants; and
 - ii. Such devices are operated for the duration of any period for which an ozone advisory, alert or emergency has been declared pursuant to 35 Ill. Adm. Code 244.
- 8a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
 - b. Each thermal oxidizer shall be in operation whenever any associated printing press is in operation and emit air contaminants, except as described in Condition 8(c).
 - c. The source shall maintain compliance with all emissions limits during periods when the thermal oxidizer is not operating. These emissions together with the controlled emissions shall not exceed the limits in Condition 8(b).
 - d. The thermal oxidizers combustion chambers shall be preheated to at least the manufacturer's recommended temperature(s) but not less than 1400°F, or the temperature(s) at which the destruction efficiency was demonstrated during the most recent performance test and these

temperature(s) shall be maintained during operation of the affected printing presses.

- e. The Permittee shall , in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the thermal oxidizers such that the thermal oxidizers are kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.
- f. Each printing line shall be operated with natural gas as the only fuel used in the press dryers and thermal oxidizers.
- g. Used cleaning towels shall be stored in closed containers.
- 9a. Total emissions of VOM from lithographic printing operations at the facility shall not exceed 9.0 tons per month and 90.0 tons per year.
- b. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from the lithographic printing operations shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- c. VOM and HAP emissions from lithographic printing shall be calculated as follows:

- i. Ink VOM or HAP Emissions (E_I):

$$E_I = C_I (1-R_I)[1-(K)(J_I)]$$

- ii. Fountain Solution VOM or HAP Emissions (E_F):

$$E_F = C_F [1-(K)(J_F)]$$

- iii. Automatic Blanket Wash VOM or HAP Emissions (E_A):

$$E_A = C_A [1-(K)(J_A)]$$

- iv. Manual Blanket Wash VOM or HAP Emissions (E_M)

$$E_M = C_M (1-R_M)$$

- v. UV Coating VOM or HAP Emissions (E_U):

$$E_U = \text{Coating Usage} \times \text{VOM Content or HAP Content}$$

- vi. Press 825 VOM or HAP Emissions:

$$E_{825} = 0.94 \text{ lb/hr}^* \times 1 \text{ ton}/2000 \text{ lb} \times T + E_{f825} + E_{A825} + E_{M825}$$

Note: E_{f825} , E_{A825} and E_{M825} in this equation are the emissions only from Press 825

vii. Press 825 Fountain Solution VOM or HAP Emissions (E_{F825}):

$$E_{F825} = C_{F825} [1 - (K)(J_F)]$$

viii. Press 825 Automatic Blanket Wash VOM or HAP Emissions (E_{A825}):

$$E_{A825} = C_{A825} [1 - (K)(J_A)]$$

ix. Press 825 Manual Blanket Wash VOM or HAP Emissions (E_{M825}):

$$E_{M825} = C_{M825} [1 - R_M]$$

x. Total VOM or HAP Emissions (E_T) from printing:

$$E_P = E_I + E_F + E_A + E_M + E_{825} + E_U$$

Where:

C_I = Ink VOM or HAP consumption (tons)'

C_F = Fountain solution VOM or HAP consumption (tons);

C_A = Automatic blanket wash VOM or HAP consumption (tons);

C_M = Manual blanket wash VOM or HAP consumption (tons);

R_M = Retention factor for manual blanket wash;

= 50%, for manual blanket wash with a VOM or HAP composite partial vapor pressure less than 10 mmHg at 20°C and the used cleaning towels are kept in closed containers;

= 0% for other manual blanket wash;

R_I = Percent of ink VOM or HAP retained in printed product (heatset = 20%);

K = Control efficiency of thermal oxidizer;

J_I = Capture efficiency of dryer and control system (heatset = 100% for ink VOM not retained);

J_F = Capture efficiency of dryer and control system for fountain solution (heatset = 70%);

J_A = Capture efficiency of dryer and control system for automatic blanket wash VOM or HAP (heatset = 40% when a blanket wash with a VOM or HAP composite partial vapor

pressure less than 10 mmHg at 20°C is used, otherwise capture efficiency = 0%); and

T = Operating hours for the affected printing press (hours/month).

* Worst case emission rate for Press 825 demonstrated in most recent performance test.

- d. Glue bindery application and inkjet printing VOM and HAP emissions shall be calculated as follows:

$$E_{GB} = (\text{Material Usage, lb}) \times (\text{VOM Content or HAP Content, \% by Wt.})$$

- e. VOM emissions from the combustion of natural gas shall be calculated as follows:

$$E_{NG} = (\text{Natural gas Usage, mmscf}) \times (5.5 \text{ lb VOM/mmscf})$$

- f. For the purpose of calculating storage tank VOM emissions (E_{ST}), Section 7.1, AP-42 Fifth Edition, Volume I, November 2006 or TANKS Emissions Estimation Software, Version 4.09D, October 5, 2006 is acceptable.

- g. Total VOM and HAP emissions from the source shall be calculated as follows:

$$E_T = E_P + E_{GB} + E_{NG} + E_{FO} + E_{ST}$$

- h. Emissions of particulate matter from the paper collection systems shall not exceed emission rates of 6.43 pounds/hour and 28.2 tons/year. These limits are based on the allowable emissions from 35 Ill. Adm. Code 212.321 and the maximum process weight rate.

- i. This permit is issued based on negligible emissions of volatile organic material from the inkjet printing system #2, inkjet printing system #3, hot melt glue bindery application systems, diesel fuel tank and cleaning solvent storage tank. For this purpose emissions from each emission unit shall not exceed nominal emission rates of 0.1 pounds/hour and 0.44 tons/year.

- j. Emissions and operation of the natural gas-fired combustion equipment, including thermal oxidizers, shall not exceed the following limits:

i. Natural Gas Usage: 83.0 mmscf/month and 500 mmscf/year

ii. Emissions from combustion of natural gas:

<u>Pollutant</u>	<u>Emission Factor</u> (lbs/mmscf)	<u>Emissions</u> (Tons/Mo) (Tons/Yr)	
Carbon Monoxide (CO)	84	2.63	21.00
Nitrogen Oxides (NO _x)	100	3.13	25.00
Particulate Matter (PM)	7.6	0.24	1.90
Sulfur Dioxide (SO ₂)	0.6	0.02	0.15
Volatile Organic Material (VOM)	5.5	0.17	1.38

These limits are based on the maximum equipment operations and standard emission factors (Tables 1.4-1 and 1.4-2 of AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- k. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
 - i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.
- b. Testing required by Conditions 11 and 12 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

11. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA, pursuant to 35 Ill. Adm. Code 212.110(c).
- 12a. Pursuant to 35 Ill. Adm. Code 215.409, the volatile organic material content of fountain solution and all coatings shall be determined by Method 24, 40 CFR 60, Appendix A. The volatile organic material content of printing inks shall be determined by Method 24A, 40 CFR Part 60, Appendix A. Any alternate test method must be approved by the Illinois EPA, which shall consider data comparing the performance of the proposed alternative to the performance of the approved test method(s). If the Illinois EPA determines that such data demonstrates that the proposed alternative will achieve results equivalent to the approved test method(s), the Illinois EPA shall approve the proposed alternative.
 - b. Pursuant to 35 Ill. Adm. Code 215.410(a), any test of volatile organic material emissions, including test conducted to determine control equipment efficiency or control device destruction efficiency, shall be conducted in accordance with the methods and procedures specified in 35 Ill. Adm. Code 215.102.
 - c. Pursuant to 35 Ill. Adm. Code 215.410(b), upon a reasonable request by the Illinois EPA, the owner or operator of a volatile organic material emission source required to comply with the limits of 35 Ill. Adm. Code 215 Subpart P shall conduct emissions testing, at his own expense, to demonstrate compliance.
13. The oxidizers shall be equipped with a continuous temperature indicator and strip chart recorder or disk storage for the oxidizer operating temperature. During periods when the strip chart recorder or disk storage devices are inoperable, the Permittee shall manually record the oxidizer operating temperature at least one time per operating day.
14. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its

operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

15. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 16a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the Conditions of this permit:
 - i. Records addressing use of good operating practices for the thermal oxidizers:
 - A. Records for periodic inspection of the thermal oxidizers with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. Ink usage (tons/month and tons/year);
 - iii. Fountain solution usage (tons/month and tons/year);
 - iv. Manual cleaning solvent usage (tons/month and tons/year);
 - v. Automatic cleaning solvent usage (tons/month and tons/year);
 - vi. UV coating usage (tons/month and tons/year);
 - vii. VOM and HAP content of ink (percent by weight);

- viii. VOM and HAP content of fountain solution as-applied (percent by weight);
 - ix. VOM and HAP content of manual cleaning solvent (percent by weight);
 - x. VOM and HAP content of automatic cleaning solvent (percent by weight);
 - xi. VOM and HAP content of UV coating (percent by weight);
 - xii. VOM and HAP emissions when the thermal oxidizer is not operating including supporting calculations (tons/incident);
 - xiii. Oxidizer monitoring data;
 - xiv. Monthly and annual natural gas usages (mmscf/month and mmscf/yr); and
 - xv. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM and HAPs from this source with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
18. Pursuant to 35 Ill. Adm. Code 215.410(c), a person planning to conduct a volatile organic material emissions test to demonstrate compliance with 35 Ill. Adm. Code 215 Subpart P shall notify the Illinois EPA of that intent not less than 30 days before the planned initiation of the tests so the Illinois EPA may observe the test.
- 19a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant

records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.

- b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

It should be noted that the portable kerosene heater is exempt from permitting pursuant to 35 Ill. Adm. Code 201.146(c).

It should also be noted that the natural gas fired emergency generator (< 1500 hp) and the 158 hp diesel fire pump are exempt from permitting pursuant to 35 Ill. Adm. Code 201.146(i).

It should be further noted that this permit has been revised so as to include operation of the equipment described in Construction permit 12060028.

If you have any questions on this, please call David Hulskotter at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:DWH:

cc: Illinois EPA, FOS Region 3
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the printing plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, (e.g., 100 tons/year for VOM, 10 tons/year for any single HAP, and 25 tons/year for totaled HAP, 10 tons per year for a single HAP, and 25 tons per year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						Single <u>HAP</u>	Total <u>HAPs</u>
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>			
Heatset Web Offset Presses					90.00			
2 Inkjet Printing Systems					0.88			
Cleaning Solvent Storage Tank					0.44			
Paper Collection Systems			28.20					
Natural Gas-Fired Combustion Equip	21.00	25.00	1.90	0.15	1.38			
Glue Bindery Application					0.44			
Diesel Fuel Tank					0.44			
Plant-Wide Totals	<u>21.00</u>	<u>25.00</u>	<u>30.10</u>	<u>0.15</u>	<u>93.58</u>	<u>9.0</u>	<u>22.5</u>	

DWH: